Bind together

State of Rhode Island and Providence Plantations

THIRD ANNUAL REPORT

OF THE

BOARD OF MANAGERS

OF THE

Rhode Island State Agricultural School and Experiment Station,

MADE TO THE

GENERAL ASSEMBLY AT ITS JANUARY SESSION, 1891.

PART I.

STATE AGRICULTURAL SCHOOL.

[Part II—State Agricultural Experiment Station—is printed under separate cover.]

PROVIDENCE, R. I.
E. L. FREEMAN & SON, STATE PRINTERS.
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BOARD OF MANAGERS.

Rhode Island State Agricultural School and Experiment Station.

C. H. Coggeshall,	Bristol County.
Chas. O. Flagg,	Providence County.
Chas. J. Greene,	Washington County.
Melville Bull,	Newport County.
J. H. Eldredge, M. D.,	Kent County.

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Chas. O. Flagg, President,	P. O., Kingston, R. I.
Chas. J. Greene, Secretary,	P. O., Kenyon, R. I.
Melville Bull, Treasurer,	P. O., Newport, R. I.

EXPERIMENT STATION STAFF.

Chas. O. Flagg, B. Sc.,	Director and Agriculturist.
H. J. Wheeler, Ph. D., Göttingen,	Chemist.
L. F. Kinney, B. Sc.,	Horticulturist.
Samuel Cushman,	Apiarist.
F. E. Rice, M. D., M. R. C. V. S.,	Veterinarian.
H. F. Adams,	Farmer.

The publications of the station will be mailed free "to such individuals actually engaged in farming as may request the same." The station desires the co-operation of the farmers of the State in the work of investigation, and any facts concerning unusual animal or vegetable growth or disease, are solicited. Visitors are always welcome. Railroad station, telegraph, express and post office, Kingston, Rhode Island.

SCHOOL CALENDAR.

June 16, Entrance Examination at 12 o'clock, M.

Fall Term. 1891.

September 23,	Entrance Examination.
“ 24,	Term begins.
November —,	Thanksgiving.
December 23,	Term ends.

Winter Term. 1892.

January 4,	Term begins.
February 22,	Washington's Birthday.
March 29,	Term ends.

Spring Term. 1892.

April 7,	Term begins.
——— —,	Arbor Day.
June 18,	Term ends.

Fall Term. 1892.

September 17,	Entrance Examination.
“ 18,	Term begins.

FACULTY.

JOHN H. WASHBURN, PH. D., (Göttingen).
Principal, Professor of Chemistry.

CHARLES O. FLAGG, B. Sc.
Professor of Agriculture.

FREDERICK E. RICE, M. D., M. R. C. V. S.,
Professor of Human and Comparative Physiology, Zoölogy and Veterinary Science.

L. F. KINNEY, B. Sc.,
Professor of Horticulture and Botany.

———————

Professor of Mathematics and Physics.

HOMER J. WHEELER, PH. D., (Göttingen),
Professor of Geology.

SAMUEL CUSHMAN,
Lecturer on Bee Keeping.

MISS SERENA STOCKBRIDGE,
Instructor in English, French and Latin.

THOMAS C. RODMAN,
Instructor in Wood and Iron Work.

MISS HELEN M. WELLS,*
Instructor in Drawing.

MISS SADIE P. CLARK,*
Instructor in Music.

MRS. F. G. PRATT,
Matron.

HERBERT F. ADAMS,
Farm Superintendent.

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* Appointed for the Winter Term ending March 27, 1891.

REPORT.

To His Excellency, John W. Davis, Governor, and the Honorable, the General Assembly of the State of Rhode Island, at its January Session, 1891:

KINGSTON, January 26.

The Board of Managers of the Rhode Island State Agricultural School and Experiment Station asked your Honorable Body one year ago for the appropriation of $50,000 for the erection of suitable school buildings, and $10,000 annually for the maintenance of the School, which was granted, the first on March 19, and the second on March 27th.

Plans were immediately perfected for the construction of a stone Dormitory Building, and a Boarding Hall of wood, and bids for constructing the same solicited, the Board of Managers reserving the right to reject any and all bids presented. On May 9th, a meeting for the purpose of opening the bids was held. Six bids were presented, varying in price from $43,099 to $53,550, not including heating or lighting. After mature deliberation, the Board voted to reject all bids, and the President and Treasurer of the Board were made a Committee to construct the buildings. A few days later an agreement was made with Mr. William Gosling, of Newport, to superintend the quarrying of the stone and the erection of the buildings. The cellars were excavated, and the earth used in grading about the Laboratory, and in grading a bed for a narrow gauge track from the quarry at the base of the hill, near the Apiary, to the site of the new buildings. Quite a portion of the ledge was also uncovered, and the earth used for the same purpose. A line of deep holes was drilled in the ledge, and a small quantity of powder released sufficient stone to construct about one story of the College Hall. The cellar walls were constructed of boulder stone from the fields ; the work above ground and the underpinning of the Boarding Hall, from the quarried stone. Mr. J. M. Buzzell, of Worcester, was engaged to construct the wood work of the buildings.

On July 23d, the corner stone of College Hall was laid, and the Board of Managers were pleased to entertain His Excellency, Governor Davis, and many members of the Honorable, the General Assembly, representative farmers of the State, and citizens and friends of the School. The weather was all that could be desired for the occasion. Four horse coaches and party wagons conveyed the visitors from the depot, where they arrived by special car, to the farm, where a short time was spent inspecting the Laboratory, barns and farm. Lunch was served by Messrs. Gelb & Norton, of Providence, under a tent provided for the purpose.

The ceremonial exercises began on the first floor of College Hall, where seats had been arranged, and where a derrick stood holding the corner stone, in which the date was deeply cut, ready to be laid as the north-west corner of the building. After appropriate music by the Wakefield Band, Rev. George W. Cutter, of Newport, offered prayer. Dr. John H. Washburn, Principal of the School, made a short address of welcome. A carefully sealed copper box was then placed in a pocket prepared for the purpose, and the corner stone skillfully and quickly laid over it by His Excellency, Governor Davis. The Assembly was then invited to the shade of a tent near by, to listen to the addresses. Governor

Davis as the first speaker, in closing said: "We can hold foremost position only as our intelligence may be foremost; and it is to promote such intelligence as applied to agriculture, that this school is established, and I most heartily commend it to the farmers of our State. Let us do what we may to speed the work."

Hon. Edwin Willets, Assistant Secretary of Agriculture at Washington, was then introduced, and recalling the time when he had been President of the Michigan Agricultural College, established in 1855, said he came to Rhode Island as the Representative of the *oldest* agricultural institution, to extend a hearty welcome to the *youngest.* He reviewed the establishment of Experiment Stations in this country, and followed with a very interesting address upon "The New Impulse in Education." Addresses were made by Hon. Rowland G. Hazard, President of the Washington County Agricultural Society, by Ex-Gov. Royal C. Taft, J. G. Peckham, Master of Rhode Island State Grange, and Prof. George A. Littlefield, Principal of the State Normal School. Rev. A. L. Clark, of Kingston, pronounced the benediction, and the exercises of a day ever to be prominent in the history of the State Agricultural School came to a close.

On September 23d, according to previous arrangement, the school entered its first class, in relation to which, further information may be found in the report of the Principal.

At a meeting of the Board held on September 27th, F. E. Rice, M. D. M. R. C. V. S., of Albany, was appointed to take charge of the Veterinary work of the institution, including instruction in Physiology, Anatomy and Zoölogy; and on the same date Mr. Thomas C. Rodman, of Wakefield, was appointed instructor in wood working.

At a meeting of the Board on October 11th, it was decided to proceed with the construction of a Veterinary Hospital, in accordance with plans proposed by Alexander Selkirk, Jr., of Albany, New York. His Excellency, Governor Davis, informally laid the corner stone on December 12th, on the occasion of the visit of the Board of Agriculture to the School and Station.

December 6th, the Boarding Hall was practically completed and opened to the students for board and rooms.

On December 9th, the last stone in the main walls of the Dormitory was laid, the first foundation stone having been laid June 4th, 1890. The Boarding Ball is heated by steam, the Fall River Steam & Gas Pipe Co. securing the contract. Light is furnished for both buildings by a "Springfield Gas Machine" of two hundred light capacity, and pressure is supplied by a "water pump" connected with it.

The Pawtucket Steam & Gas Ripe Company secured the contract for heating the Dormitory, and use for the purpose a double sectional "Safety" boiler of 40 horse power, so arranged that one or both boilers can be used as the severity of the weather requires. The account of the purpose and general arrangement of this building may be found in the report of the Principal, Dr. John H. Washburn, which I have the pleasure to transmit herewith.

To provide an adequate water supply for the various buildings and departments of the Institution, the Board of Managers, through the President, made a contract with P. N. Lothrop & Co., of Providence, for a six-inch artesian well, (guaranteed to furnish ten gallons of water per minute for ten hours consecutive pumping,) and a hard pine tower forty feet high, surmounted by a 10 × 10 feet circular cypress tank with frost proof cover, and above that a twelve-foot Aermotor mill connected with a pump of sufficient size to raise the water required. The well was located in a depression along the hill some 600 feet east of the Laboratory. After passing through about 28 feet of earth, the solid rock was reached and drilled for 27 feet, when the well was tested and found to yield eighteen gallons of water a minute for ten consecutive hours. The water is cold and of good quality. Messrs. Hodge & Clark, of Peace Dale, were employed to lay the water pipe. A four-inch wrought iron main was laid direct to the Laboratory, from which a three-inch main supplies the new Dormitory and Boarding Hall, and a two and one-half-inch branch leads to the stables and farm house, while still another branch conveys water to the new Veterinary Hospital. Three two-inch hydrants have been provided, one each, at the Laboratory, Dormitory and Boarding Hall. Sewers of suitable size and properly trapped have been constructed to convey all waste water from the buildings. Very little has been done in the way of grading about the school buildings, it being impossible to do so while the work of construction was in progress. Another season we hope to make an improvement in this respect.

During the summer the members of the Board were gratified to learn through the public press of the generous proposition of the Corporation of Brown University to return to the State for the benefit of the State Agricultural School the "Land Grant Fund" of 1862. The possession of this fund would be of material advantage to this institution aside from the annual income of about $3,000. The law requires military instruction in the colleges established under the Land Grant Act, and the General Government details officers from the Regular Army to give such instruction. It would therefore be possible for the Board to secure such an officer in addition to its force of instructors, provided the school could be established as a college in accordance with the provisions of the Land Grant Act of 1862 and made the recipient of its benefits.

It is well known to your Honorable Body that on August 30th the Congress of the United States passed an act in amendment of the Land Grant Act of 1862, known as the "New Morrill Bill," making a liberal annual appropriation "to be applied only to instruction in Agriculture, the Mechanic arts, the English Language, and the various branches of mathematical, physical, natural and economic science with special reference to their application in the industries of life and to the facilities for such instruction."

As the question of the disposition of the moneys due this State, at this time and in future years, under this act comes before your Honorable Body at this session, we desire to call your attention to the following points:

1. In answer to the demand of an almost unanimous public sentiment the State has established the State Agricultural School where agriculture and the mechanic arts, including the natural, physical and mathematical sciences closely allied thereto, shall be the principal branches taught, and under such regulations that the children of the industrial classes can receive the full benefit thereof.

2. There is connected with the State Agricultural School the Experiment Station, the work of which can but be a constant source of interest and instruction to the students, fostering in them habits of observation and study, and, also, furnishing those who must help themselves to an education an opportunity for remunerative labor.

3. As it is a State institution, and dependent upon appropriations from the General Government and the State for its support, and designed in answer to the demand of the people to furnish the identical instruction required by the "New Morrill Bill," will it not be wise and expedient to so amend our laws that the State Agricultural School shall be the lawful Agricultural and Mechan-

ical College of the State, and the recipient of the appropriations made by Congress for the maintenance of just such an institution?

The members of the Board of Managers are of the unanimous opinion that the history of the State Agricultural School up to the present time, with its large pioneer class, entered in September, and the number of inquiries received by the Principal in relation to the course of instruction, is an index of the public demand for a liberal and practical education at a moderate cost,—an education which shall train the eye and the hand as well as develop the intellect and train the memory,—an education to be obtained without a long and expensive preparation for entrance examinations, and which will enable its possessor to become a skillful wage earner without more expensive technical training at its close. Of course such as intend to become specialists must climb to the top, however long, difficult and expensive the way, but that is not what a majority of the industrial classes demand. Out of interest in one's work, and habits of close observation, study and thought, grow invention and progress in ways and methods, which tend to improve the condition of the people in every avocation of life. It is the aim of this institution to take young men and women from our public schools and in three years' time to give them such an insight into nature's laws and such a knowledge of first principles in mechanical and other work that they can go forth to the battle of life with every faculty alive to the cause and effect of the processes of nature and art going on around them. With the mind trained to reason and the eye and the hand to skillful labor, who can estimate the benefit that shall result to our State, in even a limited number of years, through the education afforded our industrial classes in such an institution? Fully convinced of the importance of agricultural and mechanical education for the industrial classes, the members of the Board bespeak your hearty sympathy and co-operation in making this institution the Agricultural and Mechanical College of the State, and applying to its support all moneys appropriated by Congress under the "Land Grant Act" and "New Morrill Bill" for use as specified in the acts.

Respectfully submitted,

CHARLES O. FLAGG,
President Board of Managers.

REPORT OF THE PRINCIPAL.

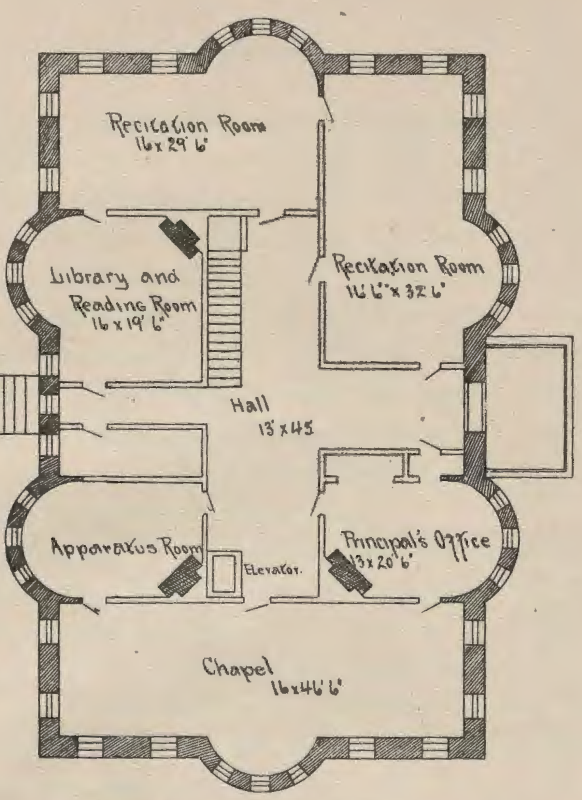
To the Board of Managers of the Rhode Island State Agricultural School:

GENTLEMEN: I have the honor to herewith submit the following report:—

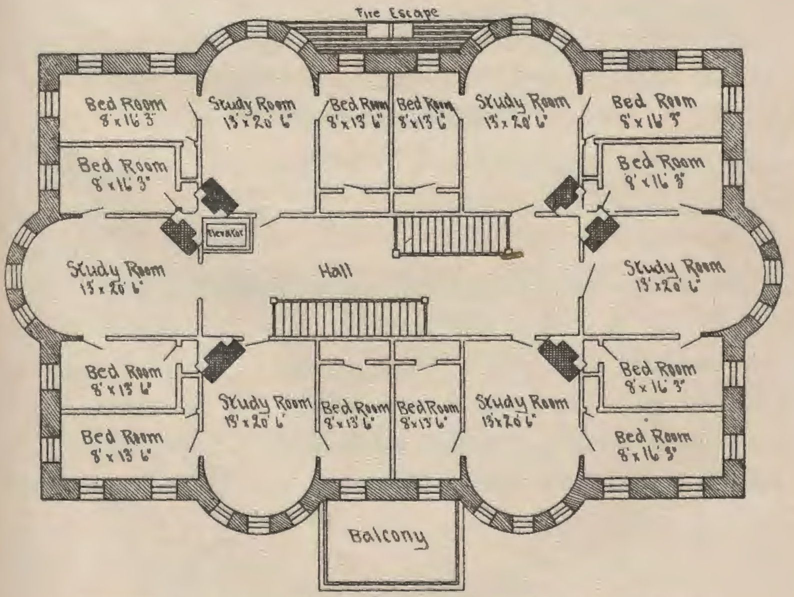
The past year has been one of phenomenal growth and success for the Rhode Island State Agricultural School. One year ago we had no buildings completed. In September last the Chemical Laboratory of the Experiment Station was ready for occupancy. A portion of this building is used by the School.

We have a collection of Physical and Chemical apparatus, a room for Physical Laboratory work, a general School Room, and the wing of the basement is used for storage of the chemical glassware, while the main part of the basement is utilized for our wood-work. This is well equipped with sixteen benches, and with appropriate tools for carpenter's work; also with tools for wood-carving. The instruction in carpentering and wood-work will continue to be given in these quarters until the completion of rooms specially adapted to the purpose in the basement of College Hall.

At the beginning of this school year, Mr. Thomas C. Rodman, a man well acquainted with all kinds of wood-work, was appointed by the Board of Managers, Instructor in Wood-work. Already he has proved himself to be well qualified as an instructor in this department, and his personal influence over the pupils with whom

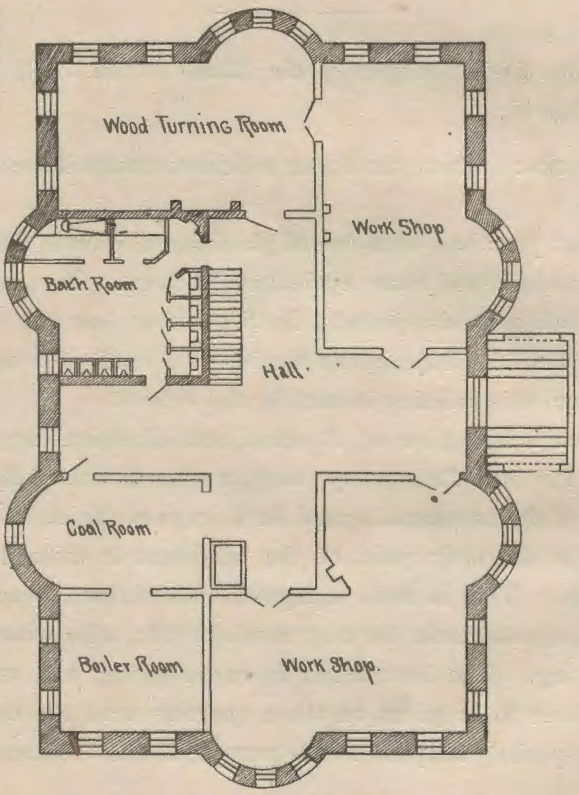


FIRST FLOOR PLAN OF COLLEGE HALL.



SECOND, THIRD AND FOURTH FLOOR PLAN OF COLLEGE HALL.

he is constantly brought in contact, is that of a dignified Christian character. Upon the veterinary hospital, now in process of construction, and which is under his supervision, the pupils are having class instruction in carpentering. The young ladies of the school, together with several special pupils, are to receive instruction in wood-carving one afternoon in the week.



BASEMENT PLAN OF COLLEGE HALL.

The College Hall is nearing completion, and it is expected that it will be finished in the coming May. This building will be a great addition to our facilities for instruction. In the basement we shall have a large, well-lighted room for carpentering, one for iron-work and one for wood-turning; also bath-room conveniences. On the first floor we shall have a large room to be used as a chapel, and as a lecture room when all the pupils are to be assembled. On this floor too, there will be a reading-room, a library, a recitation room for botany and the languages, one for mathematics and physics, an office for the principal and a ladies' cloak-room. The three floors above are to be used as students' dormitories. On the fifth floor, under the roof, is a space which will be used to store trunks, and boxes for apparatus, which is used only occasionally; and here it is intended to have a dark room for use in giving instruction in photography.

The Boarding Hall is completed and has been in use during the month just ended. It is not intended to have any of the pupils occupy this building as a dormitory. Here we are to have one or two spare rooms, where guests of the institution may find accommodation, also a room which may be used as a hospital in case of sickness among the pupils, and in which they may have quiet, care and an attendant.

This building furnishes dining room and kitchen conveniences for eighty pupils. The arrangements seem to be satisfactory in all respects.

OTHER INSTRUCTION.

Language and History are taught by Miss Serena Stockbridge. Her work since the opening of the institution has been most satisfactory.

The course in English for the first year includes work in Analysis and Composition, some study of the history of the English Language, exercises in Reading and Spelling, and a brief review of American History, the fundamental facts of which are supposed to be in possession of the students before they enter this school. The development of this plan for the year's work has been hindered by the fact that many of the class entering last September, while well qualified in other respects for taking our course of study, were found to be deficient in the rudiments of English Grammar. For this reason several weeks, which should have been given to more advanced study, have been spent in preparatory work. It is very desirable that those who intend to enter this school at any time in the future should be thoroughly and practically informed in the Grammar of the English Language.

The study of French extends through the year, occupying two recitation hours of each week. The class is not confined to the use of text books, variety being given to the recitations by exercises in translation both into English and French, and instruction in applied grammar according to the natural method.

Though comparatively little time is spent upon French we hope that the students, at the end of the course, will have such a knowledge of the language, that, whether they encounter it in general or in scientific reading, they may readily understand it.

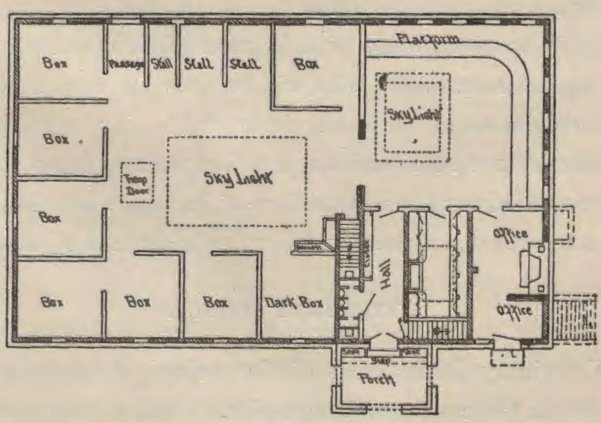
BOTANY.

The time given to the study of Botany in this institution is extremely limited for so wide a subject. However it is our purpose to instruct the pupils in the analysis of plants, and in their structure and physiology, paying special attention to the laws which govern plant nutrition. The only equipment yet provided for the Botanical department consists of fifteen dissecting microscopes, a few sets of dissecting instruments, and some of the simplest mounting and staining fluids. We have also had the use, for purposes of illustration, of two compound microscopes belonging to the Experiment Station.

There is urgent need of additional apparatus in this department. In fact no practical work in Physiological Botany can be done by the class until we have a number of good compound microscopes; botanical charts, microtomes and a micrometer are, also, much needed. We earnestly hope that the day is not far distant when we shall have a plant house, with recitation room and laboratory where class work and experimental work, both in Botany and Horticulture, can be carried on with facility.

VETERINARY DIVISION.

At a meeting held September 27th, 1890, the Board of Managers appointed Frederick E. Rice, M. D., M. R. C. V. S., Professor of Human and Comparative Physiology, Zoölogy and Veterinary Science in the School, and Veterinarian to the Experiment Station. Dr. Rice is a graduate of the University of Vermont, and of the Royal College of Veterinary Surgeons of London, England. He brings to the work of the Station a fitness gained in ten years of practice, during three of which he acted as Veterinarian to the State of Connecticut; while as an instructor his fitness has been proven by service in Amherst Agricultural College and in the Veterinary Department of Harvard University. As Veterinary Editor of the *New England Homestead*, a position that he has filled with credit during the past six years, Dr. Rice is widely known.



FLOOR PLAN OF VETERINARY HOSPITAL.

VETERINARY BUILDING.

Under Dr. Rice's direction plans have been prepared for a building meeting the requirements of the Veterinary School, the Experiment Station, and a Veterinary Hospital. It is hoped that this building will be ready for occupancy early in May. Until the Veterinary building shall have been completed Dr. Rice's lectures will be given in the recitation room of the Chemical Laboratory.

The Veterinary building is to be constructed in accordance with ideas which are the outcome of extended observation in this and European countries, and the result, it is hoped, will be a structure perfect, not only as a whole, but in every detail. It will comprise a lecture room twenty-five feet square, well ventilated and lighted by a skylight eight by ten feet; a hospital with eight box stalls, each twelve feet square, and three single stalls, each six by nine feet. One of the box stalls is to be so fitted that it can be darkened for the treatment of diseases of the eye, and furnished with steam pipes so arranged that animals can be given either hot air or steam baths and of any temperature desired: a very important feature in the treatment of diseases of the lungs and organs of circulation.

Above the hospital proper will be rooms fitted for the occupancy of the hospital attendants, who will be thus in readiness to give cases immediate attention at any hour of the day or night.

Both the lecture room and the hospital will be fitted with every appliance needed for the illustration of lectures, for the performance of surgical operations, and for the treatment of disease.

VETERINARY SCIENCE.

The Veterinary Department of the school is to take a prominent place in the course of instruction. When it is remembered that the money value of the food-producing and the work animals of this country is something over $1,750,000,000, and that upon the healthy condition of these animals depends to a great extent the health—not to say life itself—of our people, the need of thorough-going instruction in this department becomes plainly evident. It is not intended to make veterinarians of the young men who may be committed to our care, but it is intended that those young men shall be fitted to recognize contagious and other diseases in their various forms and to promptly put in action effectual means for the suppression of such diseases; also that they shall be made familiar with the general principles of selection and breeding of animals; that they shall be taught how to meet and overcome diseases of every-day occurrence, and shall know how to act, and act promptly, in cases where the delay necessitated in getting the services of a veterinarian would almost insure fatality. It is intended that these young men shall know a sound horse from an unsound one, a sick animal from a well one, and that they shall be so instructed in all the departments of farm-life that, wherever the health and well-being of animals is concerned, they may act with credit to this institution and for the greatest good of those who may commit animal life to their keeping.

The instruction in this department will be made as practical as it is possible to make such a course; demonstrations and dissections by the instructor on the bodies of living and dead animals; contact with disease and deformity as they occur in every-day practice; practical instruction in the selection of animals, and in the various methods of restraining refractory animals or those upon which some operation is to be performed, will be matters of repeated occurrence with the student; and upon the diligent use of such means of instruction and the actual acquirement of the knowledge which may rationally be expected as the result of their employment, will depend the student's graduation.

FREE CLINICS.

That the institution may be of the greatest possible benefit to the inhabitants of the State, and that our students may have opportunity of being brought into personal and practical contact with disease, and may get the benefit to be derived from the study of disease while undergoing treatment, it is proposed to establish a free clinic. This clinic will be held from 11.30 to 12.30 every Saturday, and will, it is hoped, bring to the hospital many of the common diseases of animals, including a considerable proportion of cases of lameness. Such cases as may be presented will be examined by the instructor in the presence of the class, and the peculiarities of each case brought to the attention of the student. During the Senior year, students will be called upon to make the preliminary examination of cases, report their conclusions to the class, and under the direction of the instructor, prescribe for such cases as he may select for that purpose.

NOTE.—While Dr. Rice will give advice to any who may visit the hospital at any time during the morning hours, it will be impossible for him to undertake to visit cases away from the hospital at any time, or to do operations at any time except at the clinic on Saturdays.

HOSPITAL SERVICE.

At the commencement of the Senior year, Professor Rice will conduct a competitive examination for the position of House Surgeon and for House Physician to the veterinary hospital. The students who are successful in these examinations will serve as follows: Three months as provisionals, during which time they will live in the dormitory and will be subject to calls to take the place of any of the hospital staff who may be incapacitated from serving by reason of illness or other causes; three months as "juniors," and three months as "seniors," and during both of which terms they will be expected to live in the hospital. The "seniors" will receive a slight remuneration for their services, and a diploma will be given to each who complete the full year's service.

These officers will be expected to conduct the affairs of the hospital, and take charge of cases under treatment. The value of the practical knowledge to be gained in this way is almost beyond estimate.

ZOÖLOGY.

This course will comprehend a consideration of the general plan followed by nature in the organization of animals, the object and nature of zoölogical classifications, including natural and artificial classifications, the bases of the arrangement of the Animal Kingdom into primary divisions and classes, together with an enumeration and individual consideration of the more important of such classes. The lectures will be illustrated by dissections, micro-photographic demonstrations of such types and classes as are not readily accessible, and visits to some of the more important of the zoölogical collections of the large cities.

The relation of zoölogy as a science enabling the student to the better judge of the fitness or unfitness of an animal for a given purpose will be kept constantly before the class.

Papier mache models, microscopic preparations, skeletons, etc., will be used in illustrating these lectures.

DRAWING.

The instruction in free-hand drawing will be given by Miss Helen Wells. This work, extending through two terms, will be principally from models and natural objects; the students being advanced to charcoal and crayon as soon as qualified. Mechanical drawing will be given attention later in the course of study.

MUSIC.

This subject will occupy but a few hours in the winter term, the object of the instruction being merely to practice and cultivate the talent for singing. Miss Sadie Clark will give instruction in this branch.

MATHEMATICS.

Instruction in this department has been given by the Principal in accordance with the course of study adopted.

It is hoped that a professor of mathematics will be appointed to begin work with the entering of another class.

AGRICULTURE.

In the course of study as adopted by the Board of Managers it will be noticed that agriculture has a prominent place in the work of each term. It is the aim and purpose of this institution to give its students a *scientific* and *practical* education, hence in agriculture, work in the class room goes hand in hand with the work in the field, the garden or the barn. Those of the students familiar with farm life have a good general idea of how to plant, to plow, to cultivate and perform many of the ordinary operations of the farm. This knowledge any bright boy of fifteen years acquires by assisting in the work at home. He gains the practice suited to that particular farm and soil and the methods adopted in that particular locality—they may or may not be the best known. Let the man who all his life has cultivated a light, dry, sandy loam soil be suddenly transferred to a farm of stiff, undrained, clay land, and nine times out of ten he will only learn by the costly experience of irreparable injury done to some field, that the clay requires entirely different treatment from the sandy loam. By the evil effects of driving over, or plowing a clay field when too wet, he learns, in the school of experience, that there is a time when the soil is in just the best possible condition for working. The agricultural student should know not only *how* to plow, but the reasons for plowing at all, the operation of those laws of nature which allow the plowing of one soil and forbid the plowing of another, which make one soil fertile and another barren, the adaptation of crops to soils, the theory of the rotation of crops, etc.

The practical farmer who, without school education, has acquired success by close application, perhaps laughs at the idea of going to school to fit one's self to become a farmer, but does he realize that if he could, sit down and carefully write out completely and clearly the instructions for carrying out the work of his own farm, that to make every operation plain a large part of his writing would be reasons why certain methods should be followed in preference to others—does he realize that these *reasons* of his constitute his *theoretical agriculture*? and does he not believe that the one who will closely follow the instructions *he* gives in every particular will in a sense be able to begin where he leaves off and go on to greater success in agriculture? The agricultural instruction of our school is based upon the actual practical work, not of *one man*, but of many men and for many years, supplemented by the most careful and exact investigations in the laboratory, the greenhouse, the field and the stable.

Thus far in the class room we have used as a text book the first volume of "Agriculture," by F. H. Storer, S. B., A. M., as a basis, supplemented by lectures and reference to other authors. Later in the course the best books upon Dairy Farming and Cattle Feeding, Stock Breeding, etc., will be used and every facility afforded the student to acquire a true agricultural education, namely, a knowledge of the great natural laws which govern all farming operations and have such an important influence upon the results of all agricultural operations.

Horticulture will be studied both in the class room and by practical work in the orchard, garden and greenhouse. The art of propagating plants, transplanting, budding, root and cleft grafting and pruning will be taught practically as well as theoretically, and a large orchard of numerous varieties of apples, pears, plums, peaches and cherries has been set for the purpose of illustration in the study of Pomology, as well as for experimental work. A very complete collection of grapes and small fruits of all kinds is also available for instruction in small fruit culture. Several thousand young forest trees are now ready for setting as a beginning of work in Forestry.

The large garden necessary to supply the boarding house with an abundance of vegetables will be plowed, planted and cared for entirely by the Junior class as a portion of the practical agricultural work. A quite complete assortment of hand tools, shovels, hoes, forks, etc., has been purchased for the use of the students, and a place provided in the basement of the laboratory where they can be kept in good order.

The work of the Experiment Station is always available as a source of instruction to the students, the Apiary and Poultry division, as well as the Farm, Stock, and Dairy, furnishing an opportunity for practical experience in one or all of these branches of farm industry. Particular emphasis is placed upon all such portions of the study of Botany, Physics, Chemistry, Geology and Veterinary Surgery as apply directly to the practice of agriculture, in order that its relation to all the natural sciences may be fully appreciated.

HUMAN AND COMPARATIVE PHYSIOLOGY.

In this department the student will be given a thorough grounding, first, in those principles which govern the correct conduct of human life, and, second, the study of man as a type having been undertaken, the same principles will be studied in their application to the domesticated animals.

The student will be instructed to so live as that the work of both the brain and the body may be made most effective. He will be taught what is and what is not correct method as to feeding, exercise and general care of animals; the principles governing the selection and breeding of animals, and this as indicated by sound physiological laws being given an important place in this course of study.

The principles taught will be impressed upon the mind of the student by means of experiments, dissections, the use of anatomical models and preparations, and by the artificial production of such chemical changes as are continually occurring within the animal body.

It may be seen (see course of study) that from the time of the student's entrance into the institution to the day of his leaving it, not only is his mind continually engaged with the theory of correct living, both as regards himself and the animals committed to his care, but in addition thereto, he is brought in hourly contact with the practical affairs of animal life. And in every part of the work in the Veterinary division of the school, the "practical" will outrank the purely "theoretical" in prominence given to it, and in estimating the results attained by the student.

OPTIONAL AND SPECIAL STUDIES.

It will be observed that we have placed both Latin and German as special studies. Our object is to afford such instruction to those who require it. When a graduate from a good high school comes here, wanting the benefit of our agricultural instruction and training, also to receive an industrial training, the studies of the first year course might be too elementary for such a graduate, and in order to improve his time to the best advantage, it is considered wise to allow such a student to take some of the other studies or to pursue Latin or German. A student may take a special course of study, if the faculty consider it for his best advantage to do so.

WINTER COURSE IN AGRICULTURE AND MECHANICS.

That the school may become as useful as possible to those in the State who desire to receive instruction in all, or in a portion of the subjects taught, the Board of Managers have considered it wise to open a short course in Agriculture and Mechanics. Persons taking this course may have special instruction in Veterinary Science, Agriculture, the Chemistry of Fertilizers, Dairying, (including milk, butter and cheese analysis) Carpentering, Wood-carving, Iron-work, and be permitted to take any recitation or lecture given to the regular classes, and as may seem best adapted to time and need of the individual. The course of study for such as take this special course will be decided during the first week of the term, and no change in this course will be allowed during the term unless by consent of the faculty.

This short course will continue during the winter term, from January 4 to March 29.

COURSE OF STUDY.

JUNIOR YEAR.

HOURS PER WEEK.

FALL TERM.	WINTER TERM.	SPRING TERM.
Algebra, 4 h.; French, 2h. Physics, 3 h.; Agriculture, 2h. English, 3 h.; Physical Geography, 2 h. Botany, 4 h. *Optionals.	Algebra, 4h.; French, 2 h. Physics, 3 h.; Agriculture, 2h. English, 3h.; Human Physiology, 5h. Music, 2h. *Optionals.	Algebra, 4 h.; French, 2h. Physics, 3h.; Agriculture, 2h. English, 3h.; Human Physiology, 2h. Botany, 4h. *Optionals.
Afternoon.	*Afternoon.*	*Afternoon.*
Practical Agricultural Work, 2½h.; Mondays and Thursdays. Physical Laboratory, 2 h.; Tuesdays.	Carpentering, 2½h.; Mondays and Thursdays. Physical Laboratory, 2h.; Tuesdays. Drawing, 2h.; Fridays.	Practical Agriculture, 2½h.; Mondays and Thursdays. Drawing, 2h.; Tuesdays and Fridays.

*Optional Latin and German to be taken when the student can pass a satisfactory examination in one or more of the above studies and wishes to improve the time which would be occupied with the regular studies with one or both of the above optionals.

MIDDLE YEAR.

HOURS PER WEEK.

FALL TERM.	WINTER TERM.	SPRING TERM.
General Chemistry, 4h.; French, 2h. Geometry, 4h.; Botany, 2h. Entomology, 3h.; Zoölogy, 2h. English, 2h.; Horticulture, 2h. *Optionals.	General Chemistry, 4h.; French, 2h. Geometry, 4h.; Bookkeeping, 2h. Agriculture, 2h.; Market Gardening, 3h. English, 2h.; Zoölogy, 2h. *Optionals.	Organic Chemistry, 3h.; French, 2h. Agricultural Chemistry, 2h. Farm Accounts, 2h.; English, 3h. Trigonometry and Surveying, 6h. Bee Culture, 2h.; Laboratory Recitation, 1h. *Optionals.
Afternoon.	*Afternoon.*	*Afternoon.*
Practical Agriculture, 2½h.; Tuesdays and Fridays. Chemical Laboratory, 2h.; Mondays.	Carpentering, 2½h.; Tuesdays and Fridays. Chemical Laboratory, 3h.; Mondays. Drawing, 2h., and Music, 2h.	Practical Horticulture, 2½h.; Mondays. Qualitative Analysis, 2½h.; Tuesdays, Thursdays and Fridays.

SENIOR YEAR.

HOURS PER WEEK.

FALL TERM.	WINTER TERM.	SPRING TERM.
Dairy Farming and Cattle Feeding, 5h; Agricultural Chemistry, 3h.	Stock Breeding, 3h.; French, 2h.	Geology, 4h.; French, 2h.
English, 3h.; Business Law, 2h.	English, 2h.; Rural Law, 3h.	Mental Science, 3h.; Hygiene, 3h.
Anatomy and Physiology of the Domestic Animals, 5h.; French, 2h.	Science of Government, 2h.	Veterinary Science, 4h.
*Optionals.	Veterinary Science, 5h.; Agricultural Chemistry, 2h.	English, 2h.; Forestry and Landscape Gardening, 4h.
	Experiment Station Reports, 3h.	*Optionals.
	*Optionals.	
Afternoon.	*Afternoon.*	*Afternoon.*
Practical Levelling and Surveying, 2½h.; Mondays.	Iron Work, 2½h.; Tuesdays.	Rhetoricals, 1h.
Practical Dairying, 2½h.; Thursdays.	Drawing, 2½h.; Thursdays and Fridays.	Geological Excursions, 2h.
Practical Horticulture, 2½h.; Fridays.	Chemical Laboratory, 2½h.; Mondays.	
	(Optional.) Rhetoricals.	

* The above optionals are studied under the same conditions as in Junior Year.

REQUIREMENTS FOR ADMISSION.

The requirements for admission to our school embrace the ordinary English branches, Arithmetic through square and cube root; Geography; Reading; Spelling; English Grammar, and an elementary knowledge of U. S. History.

We hope to offer tuition free to all Rhode Island pupils; board will be furnished at cost; it is intended that it will not exceed three dollars per week. It is proposed to charge each student just enough room rent to keep the room and building in good repair.

We shall have no facilities for the boarding accommodation of young women at the school, the demand for industrial education for young women not having been sufficient to warrant the furnishing of special dormitory accommodations. However, if the young ladies found accommodation elsewhere, they may receive a part or the whole of the instruction given.

It was considered wise to have a three years course ; two years is not long enough to get a fair knowledge of the branches taught, while four years is thought too long a time, by many farmers and mechanics, to keep their sons away from home.

The course presented has been adopted by the trustees for trial; it is our intention to have the best course possible, and if on trial changes suggest themselves to us, these changes will be discussed, and if it is thought wise, the course of study will be modified.

EXPENSES.

Expenses at the school will be as follows : Table board at cost, or about $3.00 per week ; necessary text books, fuel and lights at cost ; physical laboratory expense for breakage, if the student is ordinarily careful, $2.00 per term ; chemical laboratory charges, $5.00, for chemicals during the spring term of the middle year, the expenses for other terms not exceeding that of the physical laboratory ; room rent $5.00 per annum, or $2.00 per term, students to furnish their own furniture and bedding. The only other expense will be for heavy laundry work, 50 cents per dozen, 2 cents each for collars and cuffs. All clothing should be distinctly marked. Many students will find it convenient to send laundry work home, and so avoid that expense. Packages sent to the student by express or freight, in care of the school, will be taken from the depot to the school free of charge. If the student desires aid in procuring his furniture, such aid will be given by the principal, for whom special rates are made by the dealers.

LABOR.

Practical work on the farm is required two afternoons in the week, during the Fall and Spring terms of the first year, and during the Fall term of the middle year, while the Spring term of the middle year, and Fall term Senior year are devoted to practical Horticulture.

During the Winter term of the first and second years, practical work in the carpenter shop will be required, and during the Winter term, Senior year, iron work.

All class work exercises will be made educative, and treated the same as laboratory work in any other branch of instruction. If a young man comes here proficient in the practical agriculture as taught at our class work, the professor of agriculture may excuse him from that work, being convinced after examination of the student that he is proficient. Agriculture, both practical and theoretical, has the same dignity in our course of study that chemistry or any other subject has; a student will be excused from the laboratory work or theoretical study of any branch in which he can pass a satisfactory examination, and the extra time allowed him for some other line of study. The labor of the students in the carpenter shop and at iron work, is a part of their instruction, and is not paid for unless special arrangements be made with the professor in charge. Class work on the farm may be paid for at the price set by the Professor of Agriculture. All extra work outside of the required hours of labor is paid for when the student is employed by the superintendent in charge.

SELF-SUPPORT.

Labor will be furnished to those students who are desirous of assisting themselves. There will be work about the buildings, on the farm, at the Experiment Station, and in the laboratories; much of this can be performed by the students.

PUBLIC WORSHIP.

The students are expected to be present at chapel exercises every morning, and on Sundays to attend service in some church at least once a day, unless otherwise excused by the principal.

A praise service is held every second Sunday, in the afternoon, to which friends from outside of the institution, and the students, are invited.

DEPORTMENT.

We have no rules for the guidance of the conduct of our young men, except that they deport themselves on all occasions, as becomes gentlemen. Students who do not understand the elements of gentlemanly conduct will not continue to be members of our institution. Negligence, or absence from class duties of any kind will be vigorously opposed.

LOCATION.

We have an excellent location on a hillside, which furnishes us with rapid drainage and a delightful view. We are less than two miles from the railroad station. A macadamized road leads from our grounds to the station, insuring us at all times a good walk and drive. The railroad station is situated on the New York, Providence & Boston R. R., with eighteen trains daily, in the winter, stopping at Kingston, and more in the summer. The town is a very healthful place, five or six miles from the ocean.

STUDENTS.

NAME.*	RESIDENCE.
Adams, George E.	South Kingstown, R. I.
Aldrich, William S.	Providence, "
Ammonds, George C.	South Kingstown, "
Arnold, Chapin T.	Lincoln, "
Birckhead, Philip G.	South Kingstown, "
Burton, Arthur T.	South Kingstown, "
Burlingame, George W.	Glocester, "
Clark, Helen M.	South Kingstown, "
Dutemple, Frank E.	Exeter, "
Eldred, Mabel D.	South Kingstown, "
Hopkins, John C.	Glocester, "
Knowles, John F.	South Kingstown, "
Madison, Warren B.	East Greenwich, "
Maryott, Wilfred E.	North Kingstown, "
Mathewson, Earnest H.	Providence, "
Nichols, Rodman L.	North Kingstown, "
Peckham, Reuben W.	Middletown, "
Rathburn, William S.	South Kingstown, "
Rodman, George A.	South Kingstown, "
Spears, John B.	Foster, "
Slocum, Samuel W.	South Kingstown, "
Sweet, Stephen A.	Exeter, "

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*NOTE.—The average age of the students is eighteen years and three months.

Sargent Charles L.	South Kingstown,	R. I.
Sands, Simon R.	Block Island,	"
Tucker, George M.	Portsmouth,	"
Wilbur, Robert A.	South Kingstown,	"

SPECIAL COURSE STUDENTS.

Eldred, Ralph	South Kingstown,	R. I.
Howard, William H.	Pawtucket,	"
Jillson, Leroy C.	Woonsocket,	"
Kenyon, Albin E.	Richmond,	"
King, Ruth E.	Richmond,	"
Slocum, Clarence J.	Richmond,	"
Willis, Libbie W.	South Kingstown,	"